



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

THE GENESIS OF THE HEAVENS AND THE EARTH  
AND ALL THE HOST OF THEM.\*† I.

By Prof. JAMES D. DANA, LL. D.,

Yale University, New Haven, Conn.

The subject before us is the bearing of the results of Nature's teachings on the character of ancient cosmogonic records. And since but one document has sufficient completeness and authority to merit consideration in this respect, and that is the opening chapter of the Bible, it is essentially a comparison between the teaching of God's Word and the teachings of Nature, or His works.

The cosmogonies of Babylonia and Egypt would be of great interest if we had them in detail. The fragments thus far gathered afford some striking coincidences with the biblical record. In the Babylonian, according to the deciphering of tablets by the Assyrian scholar, the late Mr. George Smith, the coincidences exist in the general arrangement; in the idea of a god speaking; in the idea of universal waters answering to "waters" in the second verse of Genesis; in the mention of the stars as appointed to determine the year; in the introduction, after the announcement of each creative work, of the eulogistic expression "delightful," answering to good in Genesis. "God saw that it was good." But with all this concordance, the religion of the earliest Babylonians was multifariously polytheistic, and it, therefore, seems probable that they had derived these ideas from some earlier monotheistic document or tradition.

In the oldest Egyptian cosmogony there is also the ascription of speech to God. Besides this, the resemblances include

\* A lecture delivered at Yale College, March 29, 1890.

† The views on the first chapter of Genesis contained in this article are not different from those published by the author in the *Bibliotheca Sacra* for April, 1885. But the subject is more expanded and somewhat differently presented, and some collateral points are introduced.

the idea of a chaos at the beginning; the stirring of the primeval waters by the divine breath; the creation of light before the sun—the Egyptian god, Thoth, being said to have given the world light when all was darkness, “and there was no sun,” and in a recognition of the moulding hand of the Deity. Egypt has been claimed, from the character of some early records, to have been in an early, if not its earliest, state almost monotheistic, though later diverging widely from this.

The Assyrian tablets read by Mr. Smith were from the palace of King Assurbanipal, and, therefore, not older than 673 years before Christ. But there is reason for believing, says Mr. Smith, that the original sources of the doctrines were not less than 2000 years B. C. However this may be, the three cosmogonies, the Babylonian, the Egyptian, and the Mosaic, are like lines converging backward toward a more ancient and original tradition as a common source. And the convergence also toward monotheism affords a strong support of the view that a purely monotheistic system of cosmogony, like that of the Bible, was the original.

The idea of monotheism in that early age could not have been a natural growth or slow development; for the tendency of human reason, under the influence of the various causes of fear, dread, awe, in the world, would have been all against it. There could have been no source short of divine inspiration. The systems of religious belief that have held sway among the nations have not been slow developments, but instead, the enforced ideas of a few individuals whose high qualities gave them the power and position of great leaders. And in the implanting of the idea of the one God, the same must have been true. God enlightened the prophet, fitted him for His divine work, and exalted him thereby into a man of authority. The slowness of the Jews in accepting the idea of monotheism, notwithstanding the line of prophets, proves the impossibility of its being a natural growth. It was divinely nurtured, as well as divinely implanted. It made little progress outside of the Jewish nation before the advent of Christ, the Divine Teacher, who came as a light to the world.

To the same divine origin must we trace the only monothe-

istic cosmogony; and it has its right place as the opening chapter of a history of the development in man of the idea of One God.

We come now to the biblical narrative and a comparison of its announcements, with the records placed by the same Divine Author in the earth's structure, and the declarations of His will and the display of His wisdom in Nature's laws.

By way of introduction, an abstract of the first chapter of Genesis is here given.

After the opening words of the first verse, "In the beginning God created the Heaven and the Earth," we read as follows:—

On the *first* day there was the appearance of Light. The account says the spirit of God moved or brooded over the deep or abyss (called also "waters"), and God said, "Let Light be, and Light was."

On the *second* day the firmament was made in the midst of the waters, to divide the waters from the waters—the waters below from the waters above the firmament.

On the *third* day the waters of the Earth were gathered together into one place, and dry land appeared, which work God pronounced good.

There was also a second work on this day, the creation of *plants*, "and God saw that it was good."

On the *fourth* day the lights, the sun and moon and stars, were "made," to divide the day from the night, and "for signs, for seasons, for days and for years."

On the *fifth* day "the waters brought forth" abundantly every moving thing, and the fowls of the air.

On the *sixth* day "the Earth brought forth" the cattle, the creeping thing, and the beasts of the earth.

Again, on the same day, God said, "Let us make Man in our image, after our likeness."

Having pronounced each previous work severally "good," the whole creation at the end is pronounced, in like style, "very good;" and then come the closing words, "'THUS THE HEAVENS AND THE EARTH WERE FINISHED, AND ALL THE HOST OF THEM.' And, on the seventh day, God rested from all His work which He had made."

Before proceeding with the interpretation in the light of existing facts, I wish to say again that I believe the record to be a divine record. I believe not only the first verse to be true, but each verse to be worthy of its place in the Bible. I would not separate this first verse from its pronounced theism, and call the next an adapted fable, meaning thereby that it is little worth studying and interpreting; for I find no evidence of this in the chapter itself, which has God's approbation stamped on each day's work, nor in the events announced when viewed with the aid of modern science. If the narrative must be regarded as one of several documents that were compiled to make up the early portion of the Bible, as some biblical scholars hold, I would still claim for it a place among the earliest and most extraordinary of historical records, and none the less divine, none the less worthy of study.

Again, I would ask you not to approach the subject prejudiced with the oft-repeated statement that geology is an immature science; has made many mistakes and may be expected to make many more; or by the equally common remark that the chapter was not intended to teach natural or physical science; or by the companion remark that all attempts to use science in interpretation are, and will always be, failures. The feeling often seems to be that science is profane, the Bible divine, when in fact all truth is equally divine.

You probably never heard of any one going to the Bible for scientific instruction. The fact is that the first chapter of Genesis does not teach science. It gives simply the order of events in creation and God's agency in those events. Only half of it is open to geological argument or illustration; and the arguments appeal to but few geological facts; moreover, they are facts that no geologist doubts. Geological facts and reasonings have no reference to any work of the six days, except that of the third, fifth and sixth.

The Bible says, speaking of the fourth day's work: Let the waters be gathered together into one place, and let the dry (land) appear, and "it was so;" and geology echoes "it was so." The Bible gives the order of the several creations—first, plants; next the lower animals; next the higher; and lastly, Man. And geology says "it was so;" in other words, that

the successive events in the geological history of life correspond in a general way with these announcements in Genesis. This is so far a harmless use of geology. What it has to say beyond this is a wonderful revelation with regard to the systems of life; but this is supplementary illustration, not part of the geological argument.

Geology proves that there are discrepancies between science and the record; discrepancies with regard to the kinds of plants which made up the first life of the globe, and on some other similar points. If it states these discrepancies and explains them, it does its duty; and it is very certain that any assertions it may make on the subject will be based on well-established facts.

The interpretation of the word *day* appeals to geology for its testimony; and the testimony received is that there were no twenty-four hour days in the history of creation at any time; and it says this knowing it to be beyond all question true.

To the words, "Let the earth bring forth the grass, the herb yielding seed;" "let the waters bring forth the moving creature;" "let the earth bring forth the living creature after his kind, cattle and creeping thing," geology makes no objection. It accepts them as not teaching the direct creation of species by a divine fiat, but their creation by some other method; for this is in the language. As in Nature, so in the Bible: nowhere is it taught that species were made by special divine acts for each—Man excepted.

About the work of the first, second and fourth days, geology has nothing to say. The recorded events are out of its range. Physical science is naturally appealed to for facts corresponding with that of the first day; but the second and fourth days are left to reasonable exegesis and judicious conjecture.

Now, let us take up the chapter believing that geology is honest and knows what it says, and that science of whatever kind is presenting facts when it claims to present facts; and believing that the chapter is *all*, not merely the first verse, good theism; and that the brief review of the majestic march of events before Man makes a wonderfully fitting prelude to God's message to man of law and love, constituting the Bible.

The interpretation which I present is, with small excep-

tions, that of Professor Guyot, till recently Professor of Physical Geography at Princeton. His first published work on the subject appeared just before his decease, in 1884\*, but his first communication to me of his views took place in my own house thirty-four years before, soon after his arrival in this country from Switzerland.

It is an interesting fact with regard to Professor Guyot's interpretation of the chapter that, although he had pursued for a while theological studies at Berlin, the views were not a result of an effort to harmonize the Bible and science. He was preparing, at Neufchatel, over fifty years since, a course of lectures on General History, he being Professor of History in the Swiss University, and thought to commence it with an introductory lecture on Cosmogony, or the world before Man, for which astronomy, biology and geology, afforded facts. He worked out the order of events without a thought of the first chapter of Genesis. When his cosmogony, thus deduced, was completed, it flashed upon him, he says, that it set forth essentially the same order of events as the cosmogony of the Bible. He then took up Genesis for careful study, and the explanations which he has published were the result. This is the right way to approach the subject.

To proceed with the discussion.

It is necessary, at the outset, to recognize two fundamental principles in the interpretation.

First—*A physiological fact bearing on the character of the ancient document.* The history, if a communication from the Deity to man, should have in its words the limitations that necessarily pertain to a human scribe. Man's comprehension of an idea communicated by another is limited by the amount and character of his knowledge and beliefs, and the terms or expressions he would use in transcribing it would be thereby determined. For example, the expression "plants" means to an ordinary man ordinary plants, such as he sees about him. Having the impressions of the natural world grown into him, he could not have grasped the general idea of a plant, and recognized the essential attributes in the simplest of species,

\* Creation, or the Biblical Cosmogony in the Light of Modern Science. 140 pp. 12mo., 1884. (Charles Scribner's Sons.)

however the idea might have been expressed. So again, the idea of space about the earth would necessarily take shape in the mind as that of a solid firmament with men who never had any other idea on the subject, even if the author imparting the idea were divine. Further, man, in his limited experience, would naturally have conceived only of completed results after each fiat, even if the language communicated to him were as adverse to it as the expressions, "Let the waters bring forth;" "let the earth bring forth."

Secondly—*The creative works mark off grand epochs in creation's history.*—To comprehend the narrative, if it be divine, and discern the truth pervading it, we must enter into its spirit. We must understand that it contains but brief announcements of the grand steps of progress in the earth's genesis. Each step in the progress to be of sufficient importance to make one of the eight—those of the eight fiats—ought to correspond to the introduction of some new phase or idea of fundamental significance. Such it must be if written by a man of supreme intelligence and exalted philosophy. Such it must be if God is the author. A method of interpretation that puts among the eight an event not of this epochal character should be received with doubt.

I pass now to the narrative.

First—*The system in its arrangement.*—Of the six days of Genesis, the first three are like the last three in having *light* as the work of the first of the three days, and in having *two* great works on the last of the three. There is, thus, a parallelism in movement between the two halves, or the first and second triads. On the first day, the light was the *light* of the universe, dependent on the constitution of matter; on the fourth day, the first of the second triad, it was the *light* from the sun, moon, and stars to the earth.

Further, the first triad includes the events connected with the *Inorganic* history of the earth, the last of which, on the third day, was the arrangement of the lands and seas. The second triad is occupied with the events of the *Organic* history, from the creation of the first animals to man.

Further, the third day, or the last of the first triad, ends

with the creation of plants as its second great work; and this creation of plants was the introduction of the new element, Life, a new creation, inconceivably above the physical forces of dead matter before existing, betokening the grand line of progress during the succeeding era. So on the sixth day, the last of the second triad, the second great work is the creation of Man, a being made in the image of God, and destined through His spiritual nature to immortal progress.

Thus, as Professor Guyot explains, the last day of each era, the Inorganic and the Organic embraced one work typical of the era and another prophetic of the future.

This system of arrangement is not the student's fancy. It is in the record profoundly, and the fact displays purpose in the author of the document and knowledge of philosophy beyond that of man.

This system may be better understood from the following scheme:—

|                       |   |          |                                                                          |
|-----------------------|---|----------|--------------------------------------------------------------------------|
| I. Inorganic History. | { | 1st Day. | Light.                                                                   |
|                       |   | 2nd Day. | The firmament dividing the waters from the waters.                       |
|                       |   | 3d Day.  | 1. The appearance of dry land in the seas.                               |
|                       |   |          | 2. The creation of plants.                                               |
| II. Organic History.  | { | 4th Day. | Light to the earth from the sun, etc., to divide the day from the night. |
|                       |   | 5th Day. | Creation of the inferior animals, with fishes, birds, aquatic reptiles.  |
|                       |   | 6th Day. | 1. The creation of mammals or quadrupeds, with other reptiles.           |
|                       |   |          | 2. The creation of Man.                                                  |
| III.                  |   | 7th Day. | God's day of rest; Man's redemption.                                     |

*The beginning: the formless earth*; verses 1, 2.\*—The first verse of the chapter, besides proclaiming God the creator of the "heaven and the earth," teaches that the beginning of the heaven and the earth was the beginning of the existing

\* <sup>1</sup> In the beginning God created the heaven and the earth. <sup>2</sup> And the earth was waste and void; and darkness *was* upon the face of the deep. And the Spirit of the God brooded upon the face of the waters.

universe. So says science also, as far as its facts and safe reasonings reach back. There was a beginning, says geology, to man; and farther back, to mammals, to birds and to reptiles, to fishes and all the lower animals, and to plants; a beginning to life; a beginning, it says, also, to mountain ranges and valleys, to lands and seas, to rocks. Hence science takes another step back, and admits or claims a beginning to the earth, a beginning to all planets and suns, and a beginning to the universe. Science and the record in Genesis are thus one. This is not reconciliation; it is accordance.

It is not uncommon to separate the first sentence of the chapter from the rest, making it to refer to a beginning time indefinitely far back of the first day of the described creation. There is no warrant for this in the document itself. The announcement, "In the beginning God created the heaven and the earth," is immediately followed by a description of the events of the creation announced, and particularly that of the earth. And at the end of the document it is added, "Thus the heavens and the earth were finished, and all the host of them," affirming that the creation of the heavens and the earth announced in the opening words was completed.

The words of the first and second verses relating to the earth imply that "in the beginning" it was "without form and void," or, as another translator has it, "formless and naught," or as translated in the Septuagint, "invisible and uncomposed." If the "beginning" was the beginning of creative works, the beginning of the universe, the earth was literally "formless and naught," "invisible and uncomposed."

*The waters over which the Spirit brooded: LIGHT the creation of the first day; verses 3-5.\** — The actual condition of the earth at "the beginning" is partly indicated by the fiat of the first day: "Let light be, and light was." The light was not that of the sun, for the sun is first mentioned on the fourth day. It must, therefore,

\* <sup>3</sup> And God said, Let there be light: and there was light. <sup>4</sup> And God saw the light, that *it was* good: and God divided the light from the darkness.

<sup>5</sup> And God called the light Day, and the darkness He called Night. And there was evening and there was morning, day first.

have been light in its essence or nature, and therefore the first light of the universe, for, once existing, there could be no second creation of light in the universe. The phenomena of light have been proved to be a result of molecular action, and to be dependent upon fundamental qualities of matter as it is now constituted. Man has found that the laws of heat and of electrical and chemical action are so involved with those of light that all these conditions are convertible and one in molecular origin. Since light has, therefore, no existence apart from molecular action, its creation was not the creation of an element, or of a something admitting of independent existence. And as light, heat, electricity are results of molecular activity, the fiat was the initiation of activity in matter, till then inert. Moreover, the fiat must have preceded the existence of water and of earth, of liquid or solid or gaseous compounds of every kind. For light is manifested in the making of such compounds. Our electric lighting is produced through the decomposition of water, and the same light was manifested at the first origin of water.

We thus learn that Light, at the command "Let Light be," was the signal of creation begun; of physical and chemical changes begun that were to evolve systems of worlds, and, within these systems, suns and planets; and, therefore, the signal of the beginning of the "generations of the heavens," or of the development of the universe. Before the fiat, the "earth" must have been literally "formless and naught," or "invisible and uncomposed;" and the "waters" over which "the Spirit of God brooded" before the fiat, "Let Light be," were literally a "deep" or "abyss" in utter darkness, not literal waters.

The latest readings of science thus declare, as emphatically as the Bible, that on the first day "Light was." Here is accordance between science and the Bible; a most marvelous accordance supposing the chapter not inspired; a delighting, soul-stirring accordance to the man of faith in God's word and works.

Before passing on, I will say a word with reference to another view of the earth's condition when creation begun which has been often set forth. It supposes that the earth was in a state of chaos, cold as the intense cold of space,

dark, bare, and desolate, and that the creation recorded in Genesis consisted in giving it light and heat, continents and seas, plants and animals, and lastly man.

But such a frigid, frozen globe would have been almost cloudless. Its skies at night would have been studded with stars, and brightened by the changing moon, and now and then streaked by meteors, making heat and light by friction in their movement through the upper air. Darkness would have been impossible. During the day the sun would have shone over the chaos with rays undimmed by cloud or mist, making a well-lighted earth; and why not a well-warmed earth. Under such circumstances the fiat "Let Light be" becomes meaningless.

You may say that the sun, also, was then a dark chaotic globe. The supposition is easily made. But the conditions supposed are an impossibility in the face of existing physical and astronomical knowledge. The earth and sun and stars are one in system. The earth could not have been in existence before the sun. The sun was never a dark globe.

*The evening and the morning; day first*, v. 5.—The word *day* in the chapter, with the accompanying expression, *evening and morning*, naturally suggests days of twenty-four hours; and many translators still assert that the Hebrew will not admit of any other signification. But the subject or the occasion sometimes reasonably influences interpretation where the literal rendering is not disputed. We must here have in mind, and realize, that the narrative speaks not of some laborer working by the day and resting at night, but of the infinite God, who measures time by no rolling atom in space; who allows over a thousand years for the maturing of some of the plants with which he has adorned this globe; who secures his ends not by violence in the briefest moment—man's criterion of greatness—but by the still and prolonged action of His own irresistible power, evolving vast and varied results through seemingly trivial agencies, in which and by which He executes His will. With correct views on this point, we cannot fail to recognize that days of twenty-four hours are as much opposed to the spirit of the Bible cosmogony or any true cosmogony as they are to the majesty of the Deity Himself and the declarations of His workings in the

earth's structure. Moreover, it is hardly possible that Moses, who wrote—see the 10th Psalm, which is ascribed to Moses—“A thousand years in Thy sight are but as yesterday when it is past,” and “Before the mountains were brought forth, or ever Thou had formed the earth and the world, even from everlasting to everlasting, Thou art God,” entertained so belittling an idea of the Creator and His work.

Further, the word *day* is used in the account in four different senses, as it is in our own language, and a fifth is introduced in a following verse. (1) In verse 5 God called the light day; (2) close of verses 3, 5, 8, 13, the evening and morning were one day before there was a sun to mark off days; (3) verse 16, the sun is appointed to rule the *day*, and the lesser light to rule the night—a day of twelve hours; (4) verse 14, the sun is appointed for signs and for seasons and for *days* and years—days of twenty-four hours; again, in the second chapter, 4th verse (5), the whole period of creation is spoken of as the day in which the Lord God made the earth and the heavens. We have, therefore, the light called day; days before there was a sun; days of twenty-four hours; days of twelve hours; and the whole period of creation a day. Thus there is sufficient authority for whichever use of the word the subject requires.

The expression “evening and morning” indicates, by a familiar metaphor, the beginning and consummation of each work. It was used for the first day, which was preceded by darkness, but which strictly had no evening. Night is the natural prelude to the day and day's work. The time before a work begins is like a night or darkness as respects that work; its commencing progress is the dawn; its consummation is the meridian. In illustration of this, I cite a fact from the *Journal of the Deputation of Missionaries of a Tour around Hawaii*, published at Boston in 1825 (page 137). It is there stated that the Hawaiians, when they wish to express the existence of anything from the beginning, say that it has been so “*mai ka po mai*,” *from the night till now*. Their traditions refer the beginning of things to *night*, and the present state they call *day*, or *state of light*. Thus the uncivilized people and the civilized are alike in usage.

[To be continued.]